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**National Metrology Centre Reflection (ACE)**

In Term 1, I went to the National Metrology Centre for my science fieldtrip. In the beginning, I was very excited about the trip as I thought I was going to the National Meteorology Centre, which experiments and researches on the weather. After I knew that I was actually going to the National Metrology Centre instead, I was disappointed as I felt that it was not that fun. However, it turned out to be not a bad experience after all.

When we reached there, we were ushered into a meeting room, where we were given a short lecture on what the National Metrology Centre does. I learnt that the people there do experiments and measurements with The International System of Units (SI Units). The SI Units were created so as to have a universal unit of measurement so as not to get confused when having too many kinds of units. The SI Units consist of 7 units:

Length/m (metre)

Mass/kg (kilogram)

Time/s (second)

Electric current/A (ampere)

temperature/K (Kelvin)

amount of substance/mol (mole)

luminous intensity/cd (candela)

The purpose of the NMC is to test the measuring apparatus, and to keep the units as close to the actual unit as possible. After the short lecture, a guide took us on a tour to each of the seven rooms where they measure each of the SI units.

We went underground into a maze of corridors. After walking for some distance, we came to the first room, which tests luminous intensity. The specialist uses tens of dozens of lasers and mirrors to measure the intensity of light. While the specialist explained how it works, I was looking at the set-up in fascination. Under much urging, the guide finally made us get out of the room. It was time to move to another room. We reluctantly followed the guide, still chattering about the lasers.

The next stop was where they research on mass. We needed to wear shoe covers so as not to dirty the floor of the room. I believe that the room needs to be very clean as even a little speck of dust might affect the readings of the mass. This is necessary so as to minimise the inaccuracy of readings. The specialist there explained to us how to put measurements in scientific notation, which applies very frequently when reading mass. He then showed us how inaccurate the mass of manufactured products can be. Our attention was drawn to a huge machine. The specialist then explained that it was to generate vacuum so as to measure mass more accurately.

We then followed the guide to another room. This room was in fact not a room at all, but a small ‘office’. A part of the ‘office’ has been installed with about 6 giant clock machines that show a very accurate timing. However, some of the clocks are either slower or faster. This shows that even time might not be accurate at times. The staff told us about Singapore Standard Time (SST) and that it can be downloaded from the internet.

Due to time constraints, our fourth and last stop was in another ‘office’ which specializes on temperature. The staff showed us a quick demonstration of ‘tuning’ a thermometer to a very accurate temperature, using a small metal machine. We all wanted to try it out, but because of the time, the guide shooed us out before long.

I felt that this was a very fruitful experience as I learnt about the SSI Units, which can help me in measuring in the future. This turned out to be a fun and interesting trip after all. I hope that I can go on such trips again.